Tanta University
Faculty of Engineering

4th Year Communication 2015- 2016
Telecommunication networks.

Sheet (1)
Forecasting plan

1. The number of subscriber lines put in service in certain exchange area during the interval 1992 to 1997 was registered in the following table. Calculate the expected number of lines required to be connected at year 2010.

Year	1992	1993	1994	1995	1996	1997
Number	100	104	108	111	111	114

2. Calculate the period of the time during which the communications demand will be equal double its value now if the subscribers' annual growth is 0.05.

3. Calculate the expected number of terminals will be required to be connected in the local area network after 5 years, if the number of served users now is 1000 subscribers and the annual growth rate is 0.05.

4. Calculate the capacity of the 1st stage of an exchange required to be working over 20 years to reach its maximum capacity of 25000 subscribers. The expansion would be provided each quarter of its lifetime as 35% growth rate.

5. A local exchange with capacity 8000 lines, one year ago the initial number of lines put in service in this exchange was 500, and now there are 2000 lines in service, provided that exchange expansion follows Logistic function. How many lines will be in service three years from now?

6. **(Report)** Consider a historical data of a network as in the table shown, use this table to make forecasting in 2010 of expected subscribers density by using the mathematical models:
    - Linear model
    - Exponential model

At end of year	1995	1996	1997	1998	1999	2000
Object data	400	440	495	540	600	680

Best Wishes of Success